

CLAIMS

What is claimed is:

- 1 1. A filter element, comprising:
2 a ring of filtration media circumscribing a central axis and defining an internal
3 cavity, an end cap sealingly bonded to each end of the media ring, with one of the end
4 caps having an annular body defining a central aperture, and a groove formed
5 circumferentially around an inner wall surface of the aperture, and opening radially
6 inward toward the central axis of the element, wherein a central, perforated support core
7 can be received internally of the element and retained therein by a retaining device
8 received in the groove.

- 1 2. The filter element as in claim 1, wherein an annular flange inwardly bounds the
2 opening of the body, and projects from an end connected to the body a short distance
3 axially within the cavity toward the other end cap to a distal end located closer to the one
4 end cap than the other, the groove formed in the flange toward the connected end of the
5 flange.

- 1 3. The filter element as in claim 2, wherein the annular flange and annular body are
2 formed unitary, in one piece.

- 1 4. The filter element as in claim 1, wherein all components of the filter element are
2 formed from incineratable material.

- 1 5. The filter element as in claim 1, wherein the groove has a thin, substantially
2 rectangular configuration in cross-section.

- 1 6. The filter element as in claim 5, wherein the width of the groove is less than the
2 thickness of the one end cap.

1 7. A filter subassembly, including a ring of filtration media circumscribing a central
2 axis and defining an internal cavity, an end cap sealingly bonded to each end of the media
3 ring, with one of the end caps having an annular body defining a central aperture; and a
4 retaining ring removeably attached to the one end cap and projecting radially inward into
5 the internal cavity.

1 8. The filter subassembly as in claim 7, wherein a groove is formed
2 circumferentially around an inner wall surface of the aperture in the one end cap, and
3 opens radially inward toward the central axis of the element, and the retaining ring is
4 received in the groove.

1 9. The filter subassembly as in claim 8, wherein the one end cap includes an annular
2 flange inwardly bounding the annulus of the one end cap, and projecting from an end
3 connected to the body a short distance axially within the cavity toward the other end cap
4 to a distal end located closer to the one end cap than the other, the groove formed in the
5 flange toward the connected end of the flange.

1 10. The filter subassembly as in claim 9, wherein the annular flange and annular body
2 are formed unitary, in one piece.

1 11. The filter subassembly as in claim 7, wherein the retaining ring is a C-ring.

1 12. The filter subassembly as in claim 7, wherein all components of the filter element
2 are formed from incineratable material.

1 13. The filter subassembly as in claim 7, and further including a central support core
2 located within the central cavity and retained therein by the retaining ring.

1 14. The filter subassembly as in claim 13, wherein the support core is closely and
2 completely received within the internal cavity of the filter media ring, and is supported at
3 either end by the end caps of the element.

1 15. The filter subassembly as in claim 14, wherein the retaining ring is located so as
2 to engage and support an axial end of the support core.

1 16. The filter subassembly as in claim 15, wherein the support core is retained at
2 other axial end by the other end cap.

1 17. The filter subassembly as in claim 13, wherein all components of the filter
2 element are an incineratable material, and the support core is metal.

1 18. A filter assembly including a housing; a filter element located in the housing and
2 having a ring of filtration media circumscribing a central axis and defining an internal
3 cavity; a support core removeably disposed within the internal cavity of the filtration
4 media; and a retaining device removeably attached to the element and retaining the
5 support core within the internal cavity, the retaining device being removable from the
6 element to allow removal of the support core from the element.

1 19. The filter assembly as in claim 18, wherein an end cap is sealingly bonded to each
2 end of the media ring, with one of the end caps having an annular body defining a central
3 aperture sized so as to allow the support core to be inserted into and removed from the
4 internal cavity of the element, and the retaining device is removably attached to the one
5 end cap and projects radially inward into the internal cavity.

1 20. The filter assembly as in claim 19, wherein a groove is formed circumferentially
2 around an inner wall surface of the aperture in the one end cap, and opens radially inward
3 toward the central axis of the element, and the retaining device is received in the groove.

1 21. The filter assembly as in claim 20, wherein the one end cap includes an annular
2 flange inwardly bounding the annulus of the one end cap, and projecting from an end
3 connected to the body a short distance axially within the cavity toward the other end cap
4 to a distal end located closer to the one end cap than the other, the groove formed in the
5 flange toward the connected end of the flange.

1 22. The filter assembly as in claim 21, wherein the annular flange and annular body
2 are formed unitary, in one piece.

1 23. The filter assembly as in claim 19, wherein the retaining device is a C-ring.

1 24. The filter assembly as in claim 19, wherein all components of the filter element
2 are an incineratable material, and the support core is metal.

1 25. The filter assembly as in claim 19, wherein the support core is closely and
2 completely received within the internal cavity of the filter media ring, and is supported at
3 either end by the end caps of the element.

1 26. The filter assembly as in claim 25, wherein the retaining device is located so as to
2 engage and support an axial end of the support core.

1 27. The filter assembly as in claim 26, wherein the support core is retained at another
2 axial end by the other end cap.

1 28. The filter assembly as in claim 18, wherein the retaining device comprises means
2 for retaining the support core in the filter element, and allowing removal thereof.

1 29. The filter assembly as in claim 18, wherein the housing includes an annular base,
2 with a flow passage therein, supporting an end of the filter element.